CHAPTER II

THE MARKET FOR MUNICIPAL DEBT AND THE COMMISSION'S PROPOSALS

The Commission to Promote Investment in America's Infrastructure concluded that the federal and state and local governments are not building enough infrastructure. That view assumes that the current stock of infrastructure is smaller than the economically optimal, or efficient, amount and that new investments in infrastructure would raise economic output. The municipal debt market is the source of most financing for investment in state and local infrastructure. For the market to allocate resources efficiently, funds must be allocated to those uses that have the greatest value to society. An efficient allocation of funds cannot occur if interest rates do not reflect the costs that investors bear in financing projects. If the commission's proposals moved interest rates closer to the costs of making investments, they could improve the allocation of society's scarce resources. By exempting the interest on most municipal bonds from taxation, the federal government already reduces significantly the interest rates that municipal borrowers pay. As discussed in Chapter III, the commission's proposals could also improve resource allocation if they corrected for "spillover benefits" that caused municipalities to demand less than the optimal amount of infrastructure.

In general, however, interest rates in the municipal bond market already appear to reflect the risks and other costs of the activities being financed. Most of the market's attributes are consistent with a well-functioning credit market. The market is large, competitive, sophisticated, and able to adapt to changing economic conditions. The volume of long-term financing and the use of techniques to reduce the cost of borrowing for infrastructure have increased in the past decade. All of these factors make the municipal bond market quite robust and allow municipalities to raise the large amount of funds they need.

Yet like other credit markets, the municipal debt market is not perfect. Research indicates that the interest rates on some bonds vary by geographic location. Regulators and analysts believe that investors have incomplete information about some municipal debt. And some observers contend that the municipal bond insurance industry is not competitive. Those factors could lead to an inefficient level of investment in infrastructure. But some analysts and other evidence suggest that those factors may not diminish investment in infrastructure by state and local governments. Most importantly, the commission's proposals would not address these potential sources of market inefficiency.

CURRENT FEDERAL SUBSIDY FOR TAX-EXEMPT MUNICIPAL DEBT

The current federal tax subsidy for most municipal bonds gives municipal borrowers an advantage in the competition for loanable funds. By exempting interest on most municipal debt from federal income taxes, the federal government significantly lowers the interest rates that municipal borrowers pay. Because of the tax exemption, an investor who receives a lower interest rate on a municipal bond than on a taxable debt security can earn an equivalent after-tax return on the two investments. For example, an investor with a marginal federal income tax rate of 30 percent would be indifferent to the choice between a $10,000 taxable bond that pays 10 percent interest per year and a $10,000 tax-exempt bond that pays 7 percent. In both cases, the investor would receive after-tax interest payments of about $700 per year.

The federal government incurs substantial losses of revenue by exempting interest on municipal debt from federal income taxes. In budgetary terms, that "tax expenditure" had an estimated outlay equivalent of $25.8 billion in fiscal year 1992.[1] (The outlay equivalent figure is the sum of estimates in the federal budget of the tax expenditures from exempting interest on 11 types of municipal debt.) In addition, many states also exempt the interest on some municipal debt from state income taxes.

A LARGE, ACTIVE MARKET

From 1956 to 1990, states and localities provided, after deducting federal assistance, 70 percent of the financing for physical infrastructure built by governments in the United States.[2] Municipalities generally raise these funds by issuing long-term debt.[3] The municipal debt market, in general, functions effectively to provide many types of debt issuers and projects with access to

1. Office of Management and Budget, *Budget Baselines, Historical Data, and Alternatives for the Future* (January 1993), p. 549.

2. This calculation is based on data from Congressional Budget Office, "Updating Trends in Public Infrastructure Spending and Analyzing the President's Proposals for Infrastructure Spending from 1994 to 1998," CBO Paper (August 1993), p. 3.

3. Municipalities also issue short-term debt--debt with maturities of 13 months or less--called notes, primarily to provide cash in periods when revenues are low. In 1992, $40 billion in notes was sold. See *The Bond Buyer 1993 Yearbook* (New York: Thompson, 1993), p. 15.

funds, to raise a massive amount of capital, and to accommodate new sources of and demand for funds.

There are a substantial number of municipal borrowers, over 50,000 in total, competing to attract funds from investors.[4] An extremely large number of bond issues come to market each year. From 1983 to 1992, 87,847 long-term municipal issues were sold, compared with 15,533 debt issues in the corporate debt market.[5] The average size of a municipal offering is $15 million, although half the issues that come to market are smaller than $5 million. Because states and localities often sell debt in multiple maturities, the number of issues is much smaller than the number of bonds with distinct maturities that are subject to separate pricing decisions. When the volume of outstanding municipal debt is broken down by maturity and distinguishing characteristics, an estimated 2 million municipal securities emerge, all subject to different pricing decisions.[6]

In 1992, municipal issuers sold more than $78 billion in infrastructure debt and a total of $235 billion in debt, both to refinance outstanding, more expensive debt and to finance new projects.[7] Outstanding municipal bonds totaled $1.2 trillion at the end of 1992.[8] In 1993, new issues proceeded at a record pace, and volume is projected to be $289.5 billion for the year.[9] As shown in Table 2, the long-term municipal debt market is able to attract huge amounts of cash and meet extensive demands for funds. In general, those investments pose relatively little credit risk, because historically, municipal securities have had significantly lower rates of default than corporate debt.[10] Yet some of those funds finance relatively risky projects. For example, from 1980 through 1991,

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4. Public Securities Association, *Fundamentals of Municipal Bonds* (New York: Public Securities Association, 1987), p. 53.

5. *The Bond Buyer 1993 Yearbook*, pp. 10-11; and Securities Industry Association, *1993 Securities Industry Fact Book* (New York: Securities Industry Association, 1993), p. 13. Corporate debt totals include straight, convertible, and asset-backed debt.

6. John Petersen, "Innovations in Tax-Exempt Instruments and Transactions," *National Tax Journal*, vol. 44, no. 41 (December 1991), pp. 11-12.

7. William Chew, "Infrastructure Investment: A Credit Perspective," *Standard and Poor's Municipal Creditweek*, February 22, 1993, p. 1; *The Bond Buyer 1993 Yearbook*, p. 11.

8. Federal Reserve Board, "Flow of Funds Accounts: Second Quarter 1993, Annual Revisions" (September 1993), p. 112.

9. Roughly two-thirds of that volume was for re-funding. See Public Securities Association, "Municipal Bond Market Has Record Year in 1993" (press release, New York, December 15, 1993).

10. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market" (September 1993), Appendix B, p. 1.

TABLE 2. LONG-TERM MUNICIPAL BORROWING, 1970-1993 (In billions of dollars)

	New Capital	Re-funding	Total
1970	17.7	0.1	17.8
1971	23.9	0.5	24.4
1972	21.3	1.6	22.9
1973	21.8	1.2	23.0
1974	22.2	0.6	22.8
1975	28.4	0.9	29.3
1976	31.8	3.5	35.3
1977	36.2	10.4	46.6
1978	37.4	10.7	48.1
1979	41.4	1.9	43.3
1980	46.7	1.8	48.5
1981	46.6	1.2	47.8
1982	74.8	4.3	79.1
1983	71.8	14.0	85.8
1984	95.3	12.7	108.0
1985[a]	164.1	58.1	222.2
1986	81.6	70.0	151.6
1987	57.3	48.2	105.5
1988	77.2	39.6	116.8
1989	81.2	44.0	125.2
1990	97.0	31.0	128.0
1991	121.3	52.8	174.1
1992	115.8	119.5[b]	235.3
1993[c]	96.6	192.9	289.5

SOURCE: Congressional Budget Office based on data from the Public Securities Association.

a. The rise in borrowing in 1985 preceded legislation restricting tax-exempt borrowing.

b. A drop in interest rates substantially increased re-funding in 1992.

c. Figures for 1993 are estimated.

over $155 billion in unrated bonds was sold.[11] Some portion, possibly sizable, of that unrated debt poses a relatively high level of credit risk.

The types of investors that hold municipal debt have changed considerably over the past decade. The holdings of commercial banks and savings and loans fell from 42 percent of outstanding municipal debt in 1980 to 8 percent in 1993,

11. J.J. Kenny Co., Inc., *Municipal Bond Defaults* (New York: J.J. Kenny Co., Inc., 1993), p. 23.

while the holdings of households and mutual funds increased from 24 percent to 70 percent of outstanding debt (see Table 3). By spreading their risk across many bonds and issuing standardized shares that investors can readily buy and sell, mutual funds achieve efficiencies that may be passed through to municipal borrowers in the form of lower interest rates. (This role is somewhat similar to that of firms that pool and securitize fixed-income assets in other markets.) The growth of investment by households demonstrates that the market can provide new funds when demand increases. For example, from 1980 to September 30, 1993, the number of municipal bond mutual funds grew from 55 to 1,612, and fund assets grew from $5 billion to $399 billion.[12]

ACTIVITY TIERED BY BORROWER SIZE AND LOCATION

Like many other well-functioning financial markets, the municipal debt market is not a single place but a network of borrowers, dealers, and investors that provide financing in varying amounts and in different geographic regions. Although there are many borrowers and bond issues, a small percentage of offerings constitutes a large portion of the market's total dollar volume. In 1992, municipal bond issues greater than $25 million accounted for 77 percent of total volume but only 13 percent of total issues.[13] Those large, well-known issues are usually sold initially to investors across the country. Medium-sized issues are often sold initially on regional markets. Smaller bonds, which constitute the vast majority of borrowers, are often sold initially in the issuer's region or more immediate locale.[14]

After municipal bonds are sold to the initial set of investors, they may be resold and bought on "secondary markets." The larger, better-known bonds trade on an active national market, which is estimated to be one to two times as large as the new-issue market. (Trading volume is estimated at $3 billion a day.)[15] Trades take place "over the counter" between dealers and not through a central exchange or computer network. Medium-sized bonds are often traded on regional markets. Small bonds usually trade infrequently.

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12. These figures were provided by Lipper Analytical Services, Inc., New York, New York.

13. Testimony of Jeffrey Green, Government Finance Officers Association, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, p. 13.

14. Robert Lamb and Stephen Rappaport, *Municipal Bonds* (New York: McGraw-Hill, 1987), pp. 17, 34-35.

15. Public Securities Association, *Fundamentals of Municipal Bonds*, p. 81; Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," p. 46.

TABLE 3. VOLUME OF MUNICIPAL DEBT, BY HOLDER

Holder	1980	1985	1990	1991	1992	1993[a]
			In Billions of Dollars			
Bank Personal Trusts	22.5	48.6	82.5	91.6	97.6	103.4
Banks and Savings and Loans	152.4	235.1	120.4	105.6	99.6	98.9
Brokers and Dealers	2.5	19.9	7.9	9.4	11.3	1.4
Households	80.0	255.2	468.9	503.8	509.4	507.4
Insurance Companies	87.2	97.9	149.2	137	145.7	148.6
Mutual and Money Market Funds	6.3	70.8	206.7	255.1	307.6	340.9
Nonfinancial Corporate Businesses	3.5	4.9	10.1	11.9	12.2	12.6
Private Pension Funds	b	1.5	1.4	1.6	1.7	1.8
State and Local Government Retirement Funds	4.1	1.1	0.7	0.8	0.9	1.0
State and Local Governments	7.0	7.8	14.2	14.8	11.4	8.1
Total	365.5	742.8	1,062.0	1,131.6	1,197.4	1,224.1
			In Percent			
Bank Personal Trusts	6.2	6.5	7.8	8.1	8.2	8.4
Banks and Savings and Loans	41.7	31.7	11.3	9.3	8.3	8.1
Brokers and Dealers	0.7	2.7	0.7	0.8	0.9	0.1
Households	21.9	34.4	44.2	44.5	42.5	41.5
Insurance Companies	23.9	13.2	14.0	12.1	12.2	12.1
Mutual and Money Market Funds	1.7	9.5	19.5	22.5	25.7	27.8
Nonfinancial Corporate Businesses	1.0	0.7	1.0	1.1	1.0	1.0
Private Pension Funds	0	0.2	0.1	0.1	0.1	0.1
State and Local Government Retirement Funds	1.1	0.1	0.1	0.1	0.1	0.1
State and Local Governments	1.9	1.1	1.3	1.3	1.0	0.7

SOURCE: Congressional Budget Office based on Federal Reserve Board, "Flow of Funds Accounts, Second Quarter 1993, Annual Revision" (1993).

a. The figures in this column represent holdings at the end of the second quarter of 1993.

b. Less than $100 million.

The volume of trading in municipal bonds is less than in other types of fixed-income securities. One study found that, on average, only 180 issues are actively traded each day.[16] The low level of trading occurs largely because most municipal bonds are bought by individual investors, who usually hold them as a stable source of tax-free income.[17] Moreover, given the number and wide variety of outstanding issues, the number of potential investors in some issues is small.

Municipal bonds are relatively illiquid, for several reasons. First, because they cannot be easily or cheaply bought and sold and because they trade infrequently, they do not have stable, predictable sale prices. Second, information on municipal debt is not always readily accessible to distant investors. Third, many investors prefer bonds issued in--and therefore often exempt from income taxation by--their state of residence. The latter two factors can reduce the number of investors who are willing to purchase municipal debt on the secondary market and may also explain why smaller bonds are often sold initially on local or regional markets. To interest investors who may wish to resell their investments in illiquid bonds, borrowers must pay higher interest rates. That charge reflects the higher costs faced by the holders of the securities, should they choose to resell them.

FINANCIAL SERVICES TO REDUCE BORROWING COSTS

In a market that is working well, competition often leads to innovation and the ability to provide services and products at lower costs. Consistent with that kind of development, the municipal bond market offers financial services that reduce borrowing costs and provide access to funds. Such services are readily available and have become more sophisticated in the past decade. Examples include new types of financial instruments to provide low-cost financing and a wide array of private and public pooling techniques and credit enhancements. To be successful, those services must benefit both issuers and investors, who both may be quite sophisticated.

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16. The number of issues with four or more interdealer trades in a given day ranges from approximately 80 to 350 (see Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," p. 52). During a six-month period in 1991, only 40 municipal issues traded more than three times per day during a 10-day window. See Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board on Regulation of the Municipal Securities Market" (September 1993), p. 38.

17. Testimony of Gerald McBride, Public Securities Association, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, p. 7; testimony of Andrew Kintzinger, National Association of Bond Lawyers, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, pp. 9-10.

Low-Cost Financing Techniques

Underwriters facilitate the operation of the municipal bond market and reduce borrowing costs by bringing together borrowers and investors and providing information about borrowers at a relatively low cost. Reviews of the municipal bond underwriting industry, both regional and national, indicate that it is highly competitive.[18]

Underwriters and issuers have become more adept at developing and implementing new techniques for financing debt. In the early 1970s, 60 percent of all municipal bonds were general obligations (GOs), which are backed by the taxing power of the issuer. Two decades later, revenue bonds--debt supported by a dedicated stream of revenue that often is generated by a specific project such as a turnpike or a wastewater treatment center--accounted for almost 65 percent of tax-exempt issues, even though such issues are more costly to issuers than GOs because they are usually of lower credit quality. User charges and utility fees, which often support revenue bonds, accounted for 26 percent of all state and local revenues in 1990, up from 23 percent in 1980.[19] The growth in the issuance of revenue bonds expanded the ability of municipalities to make investments in infrastructure by allowing them to use project revenues creatively and sell infrastructure debt that posed a relatively low level of credit risk.[20] As a result of that transformation, many investors and analysts have also developed increasing expertise in assessing the revenues from projects and the credit risk of revenue bonds.

In recent years, underwriters and issuers have been able to make greater use of sophisticated cost-reducing financial techniques that allow them to create debt with attributes that more exactly match the preferences of investors. Those techniques allow issuers to sell debt securities that can be redeemed before maturity, that pay interest rates that vary over time, and that pose different degrees of credit risk even when they finance the same project. Such tools allow issuers to reduce their borrowing costs--for example, by selling long-term bonds that have some characteristics of short-term debt, which allows issuers to take advantage of the lower rates charged on short-term debt. In addition, the

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18. See General Accounting Office, *Tax-Exempt Bond Issuance Costs* (1990). In fact, the average net charge for underwriting municipal issues fell from $21.42 per $1,000 in 1983 to $9.25 per $1,000 in 1992 (*The Bond Buyer 1993 Yearbook*, p. 41).

19. Stewart Simon, "Infrastructure and Economic Development: Built on Bonds," *Fitch Research Report*, October 25, 1993, p. 8.

20. The credit quality of revenue bonds issued for infrastructure has improved over the past five years. See Philip Edwards, "Infrastructure Debt Bucks Credit Quality Trend," *Standard and Poor's Municipal Credit Week*, January 11, 1993, p. 1.

use of derivative products, which permit borrowers and lenders to exchange different types of cash flows--a variable interest rate for a fixed rate, for instance--has increased.[21] Over the past decade, development and expansion of the municipal futures market--where investors can protect themselves against changes in the interest rates of municipal debt--have also allowed issuers and investors to make use of lower-cost financing techniques.

Mutual funds also offer specialized products to attract investors with varying preferences. For example, by September 30, 1993, there were 45 mutual funds with $27.6 billion in assets that sought out and invested in many municipal bonds that were above-average credit risks.[22] Many funds have been established to purchase only the municipal debt of issuers located in one state.

Private Credit Enhancements

Private credit enhancements, such as bond insurance, guarantee timely payment of the principal and interest of a bond over its lifetime. They lower the interest rates on municipal debt by substituting the higher credit rating of an insurer or a bank for the issuer's lower rating.[23] Credit enhancements also provide information to investors, especially to households, that makes the debt more marketable.[24] For example, by purchasing insurance from a nationally known firm, a smaller issuer known primarily to local investors can market its bonds more readily to national investors. Greater competition for the debt lowers the interest rates that borrowers must pay.

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21. The following discuss new municipal financing products and techniques: Thomas Vogel, Jr., "Munis Placid Turf Faces Invasion of Tigers, Other Exotic Creatures," *Wall Street Journal*, April 19, 1993, pp. C1 and C17; Aaron Pressman, "Derivative Swaps Rapidly Expanding Beyond 'Plain Vanilla'," *The Bond Buyer's Public Finance Watch*, July 26, 1993, p. 3.; William Browne, "Derivatives: A Growing Part of the Municipal Market's Future," *Municipal Finance Journal*, vol. 13, no. 4 (Winter 1992), pp. 40-61; Petersen, "Innovations in Tax-Exempt Instruments and Transactions," pp. 18-20; and Manley Mumford, "Techniques to Lower Municipal Borrowing Costs," *Municipal Finance Journal*, vol. 12, no. 3 (Fall 1991), pp. 13-31.

22. Figures were provided by Lipper Analytical Services, Inc.

23. Bond insurance is not attractive to issuers who already have a very strong credit rating. One-quarter of the insured debt that is sold with bond insurance would be eligible for only the lowest investment-grade credit rating.

24. David Kidwell and others, "Estimating the Signalling Benefits for Debt Insurance: The Case of Municipal Bonds," *Journal of Financial and Quantitative Analysis*, vol. 22, no. 3 (September 1987), pp. 299-313. The cost savings provided by insurance (through lower credit risk, increased liquidity, and fuller information) depend on how the market views the insurer and the credit quality of the underlying security. See Eli Nathans, "Municipal Bond Insurance: The Economics of the Market," *Municipal Finance Journal*, vol. 13, no. 2 (Summer 1992), pp. 1-20.

The use of private credit enhancements, principally bond insurance, has grown dramatically in recent years, as the proportion of municipal debt held by individual investors has risen. In 1982, only 8.7 percent of new issues were insured. By 1992, the proportion of insured bonds had risen to 34.5 percent; it stood at 37.5 percent by the end of 1993.[25]

Public Credit Pooling and Credit Enhancements

State and local governments have also developed various types of credit assistance and pooling techniques to reduce the issuance and interest costs on municipal bonds. Often, they lower such costs by spreading them across a pool of diversified bonds and issuing debt in larger, more liquid amounts.[26] State and local credit pooling occurs through substate credit pools, state bond banks, and state revolving funds. Local issuers that are good credit risks but that have difficulty getting into the market because of their small size or because they have not borrowed previously can combine with other jurisdictions to create a substate credit pool that obtains funds for the localities by selling its own bonds. State bond banks sell debt whose proceeds are then re-lent to smaller communities.[27] Revolving funds make loans funded by federal grants, debt issues, and repayments of earlier loans. All three forms of intermediation reduce borrowing costs by spreading risk and issuance costs, increasing liquidity, and providing financial expertise. When pooling is combined with credit enhancement, costs for local issuers may be minimized even further.

State governments also offer numerous types of credit enhancement, including a state's "moral obligation" (a less-than-full-faith credit commitment), liens on taxes and intergovernmental funds, and full-faith and credit guarantees. Those mechanisms are usually aimed at smaller, riskier issues, especially for infrastructure.[28] Most smaller and less creditworthy issuers can benefit from

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25. Aaron Task, "Muni Insurers Back Record Total Volume of Bonds; Surpassed 1992 Market Share," *The Bond Buyer*, January 11, 1994, p. 1. Another form of credit enhancement is bank letters of credit. In 1993, 3.3 percent of the dollar volume of new issues was backed by letters of credit. In 1983, the rate was 7.5 percent (*The Bond Buyer 1993 Yearbook*, p. 10).

26. See John Petersen and others, *Credit Pooling to Finance Infrastructure: An Examination of State Bond Banks, State Revolving Funds, and Substate Credit Pools* (Washington, D.C.: Government Finance Officers Association, September 1988), for a detailed discussion of state and local credit pooling.

27. For a discussion of bond bank savings, see David Kidwell and Robert Rogowski, "Bond Banks: A State Assistance Program That Helps Reduce New Issue Borrowing Costs," *Public Administration Review* (March/April 1983), pp. 108-113; and Robert Bland, "The Interest Cost Savings from Municipal Bond Insurance: The Implications for Privatization," *Journal of Policy Analysis and Management*, vol. 6, no. 2 (1987), pp. 207-219.

28. Lamb and Rappaport, *Municipal Bonds*, pp. 183-191.

state credit enhancements or credit pooling, but many states restrict or do not use all of the pooling techniques and credit enhancements available to them. (For example, historically only a small minority of states have established bond banks.)[29]

SOURCES OF MARKET INEFFICIENCY

In a well-functioning credit market, competition among borrowers, firms that provide financial services, and investors determines borrowing costs. Thus, the prices that borrowers pay for the services they need to issue debt equal the costs of producing those services, and the interest rates they pay equal the costs of the risks for investors of investing in the assets. Three attributes of the municipal debt market that the commission or other analysts have identified may either cause states and localities to pay higher interest rates than they would in an efficient credit market or prevent them from securing financing at all. First, some investors may have incomplete information about some issues and would thus provide credit in an inefficient amount. Second, the existence of segmented state and regional markets for some municipal bond issues may push up the price of credit. Third, if the municipal bond insurance industry is not competitive, as some observers allege, this could also cause rates to be too high. Yet some of the available evidence suggests--and some analysts have concluded --that those factors may not have materially diminished investment in state and local infrastructure.

Incomplete Information About Municipal Bonds

If investors do not have information about the credit quality of municipal bonds or their future resale price, they may raise the cost of providing financing above the true risk of the investment--or be reluctant to invest at all--and thus finance less than the optimum amount of infrastructure. Based on recent reviews of the market, regulators and many market experts argue strenuously that investors lack ready access to information about the credit quality of municipal debt--particularly after bonds are initially issued--and to data about recent trading in the secondary market. Some analysts and market participants, however, dispute the effect of lack of information on the costs of issuing infrastructure debt.

Availability of Information on Credit Quality. To assess the credit risk of an investment, investors must have access to information to estimate the probability

29. In 1988, only nine states had bond banks. See Petersen and others, *Credit Pooling to Finance Infrastructure*, p. 28.

of default and the likely magnitude of their loss in case of default. If investors are denied access to information about credit risk, a market in the securities may not develop.[30] If a market does develop, investors with incomplete information may require interest rates that are higher than appropriate for the actual credit risk of the debt that they are willing to buy. Investors who purchase debt on the secondary market also require information to assess credit risk. Therefore, such information must be available on a continuing basis.

Information on credit quality may not be made available to investors for several reasons. Producing and disseminating information may be expensive tasks, and potential producers may not be able to charge all those who would benefit from its availability. In addition, issuers may not release data that would raise their borrowing costs.

Yet even if credit analysts or investors had access to all of the available information on an issue, that access would neither eliminate uncertainty about the repayment prospects of projects nor ensure that all projects obtained financing. Investors, credit rating agencies, bond insurers, and issuers who all have access to the same information may still come to different conclusions about the viability of a project, particularly one that employs a method or idea that has not been attempted in the past or one that could default as a result of a single, unpredictable event, such as a decision of future legislators. An investor's judgment about the risk of such an investment may lead him or her to refuse to extend credit on terms that the issuer is willing to accept. In such cases, wider distribution of existing information would not alter market pricing or the volume of borrowing. Rather than reflecting a "market failure," these cases indicate the inherent difficulty that projects with uncertain futures face in attracting funds at rates that borrowers consider affordable.

Availability of Trading Data. To determine the interest rate that investors require to purchase debt on the primary market, the investors need information about the frequency and prices at which bonds traded in the secondary market and about the cost of making those transactions. Unlike information on credit quality, which issuers or their representatives usually provide, information on trading prices and frequencies can only be produced by market activity.

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30. The lack of a market may arise because of the so-called lemon problem. For example, if an investor is unable to determine the quality of an asset like a bond, he or she will offer a price that reflects the expectation that it is of average quality. At that price, bonds of above-average quality would not come to market because they would be underpriced, but the lemons would come to market. Indeed, the market would be dominated by lemons, and as a result, investors would avoid the market as a whole. The lemon problem exists because of an asymmetry in the distribution of information; that is, the borrower has information that the investor does not. For a summary of this problem in financial markets, see Frederic Mishkin, *The Economics of Money, Banking, and Financial Markets* (New York: HarperCollins, 1992), pp. 165-171.

Causes of Incomplete Information and Potential Effects on Municipal Borrowing. Three factors contribute to incomplete information in the municipal bond market. First, municipal bond issuers are subject to much less federal regulation than borrowers in other financial markets in regard to the dissemination of financial information. Only in 1975 did the Congress create the Municipal Securities Rulemaking Board (MSRB) and grant it the power to promulgate rules, under the supervision of the Securities and Exchange Commission (SEC), with respect to transactions in the municipal securities market. In that year, the Congress gave the SEC broad rulemaking and enforcement authority over all municipal securities brokers and dealers. However, the MSRB is not allowed to require states and localities to disclose financial information, either initially or on an ongoing basis, to the marketplace. The SEC is also prohibited from requiring municipal borrowers to file any documents prior to the sale of a municipal security. The SEC does require underwriters of municipal offerings to obtain and distribute certain financial information to their customers; however, municipal issuers are not subject to any direct federal requirements regarding continuing disclosure.[31]

The SEC and the MSRB have recently examined existing disclosure requirements in the municipal bond market and presented their findings and recommendations for reform.[32] The SEC found that a lack of continuing disclosure by issuers may lead to ill-informed pricing of some bonds in the secondary market, which could result in higher borrowing costs for some issuers.[33] (Some market participants as well argue that limited secondary market disclosure may raise costs for issuers.)[34] The MSRB has also concluded that additional continuing disclosure could lead to lower borrowing costs for some municipalities.[35] Although the SEC study found that its regulations, combined with voluntary municipal efforts, had substantially improved initial disclosure for large issuers, it argued that some smaller, less

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31. For a discussion of regulation in the municipal bond market, see Securities and Exchange Commission, "Staff Report on the Municipal Securities Market"; and Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board."

32. The SEC and MSRB have also examined a number of other issues including political contributions from underwriters. These issues and the general subject of "investor protection," however, are outside the scope of this study. The Congress has held hearings on these efforts; see testimony before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, on September 9 and October 7, 1993.

33. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," pp. 27-28.

34. For example, see the testimony of Gerald McBride, October 7, 1993, p. 5.

35. Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board," pp. 72-73.

frequent issuers disclosed information at initial offerings that was less than complete.[36]

A second factor leading to incomplete information is that data on the last bids received on bonds or on executed trades are usually not available to all investors.[37] A third factor is the nature of the market--a preponderance of small, inactively traded bonds sold by thousands of infrequent, small borrowers--which makes it difficult and expensive to collect and maintain data on most issues.

Still, some analysts and data suggest that the current availability of information on credit quality in the municipal bond market may not significantly reduce the amount of investment in municipal infrastructure. Several market experts argue that the bonds, particularly small ones, about which there is less than adequate initial and ongoing market information are typically health care, industrial development, housing agency, and other bonds in which the ultimate payor of the debt is a corporation or another nongovernmental entity.[38] Those bonds do not support public infrastructure projects.

There is also some evidence that financial information is available on most bond issues and that the market uses this type of information to determine borrowing costs. For example, information is reportedly available to the marketplace both initially and on a continuing basis on the issues that constitute 80 percent of the municipal debt that comes to market each year.[39] Moreover, as noted earlier, in the absence of nationally mandated disclosure, regional and local firms have developed methods to collect and disseminate data on credit quality to meet customer needs.[40] Some research indicates that institutional investors and intermediaries may be efficient in pricing municipal debt in the primary and secondary markets.[41] In addition to directly assessing the credit

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36. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," pp. 26-27.

37. Ibid., p. 20.

38. See John Petersen, *Information Flows in the Municipal Bond Market: Disclosure Needs and Processes* (Washington, D.C.: Government Finance Officers Association, 1989), p. 39; and Blue Ribbon Committee on Secondary Market Disclosure, *Report to the National Association of State Auditors, Comptrollers, and Treasurers on Improving Secondary Market Disclosure* (Washington, D.C.: National Association of State Auditors, Comptrollers, and Treasurers, August 1993), p. 1.

39. Blue Ribbon Committee on Secondary Market Disclosure, *Report*, p. 1.

40. See testimony of Andrew Kintzinger, October 7, 1993, p. 11.

41. See Robert Lamb, "The Secondary Market: Trading Municipal Bonds," and "The Primary Market: Underwriting Municipal Debt," in Robert Kuhn, ed., *Corporate and Municipal Securities* (Homewood, Ill.: Dow Jones-Irwin, 1990), p. 819 and pp. 805-807, respectively; and Richard Tauber, "Efficiency in the Municipal Market," in George Kaufman, ed., *Efficiency in the Municipal Bond Market* (Greenwich, Conn.: JAI Press, 1981), p. 229.

quality of the municipal debt they purchase, investors can use credit ratings--credit rating agencies rated about 90 percent (by volume) of all debt sold during the 1980-1991 period--and credit enhancements to provide them with information about credit quality.[42] Finally, some issuers argue that the market is satisfied with the amount of information on credit quality that is now available because investors do not set higher rates for issuers that currently disclose less information than others.[43]

Some analysts suggest that a lack of data on the trading of infrastructure debt may not lead to an inefficient amount of investment in infrastructure. The small amount of trading data on infrastructure bonds, as noted, may simply reflect the absence of trades in bonds that many investors prefer to hold to maturity. In addition, some information is available through private firms--especially firms that act as brokers for other broker-dealers--that specialize in collecting and disseminating data to institutional buyers and sellers on trading activity in the secondary market.

Segmentation of the Market for Some Issues

In efficient financial markets, the risk-adjusted, after-tax returns on all assets are equal, after deducting administrative costs. But some debt markets are segmented; that is, interest rates vary by geographic location. In the case of the municipal bond market, several studies indicate that it is segmented by region, especially for smaller issues. That means that an increase in the relative demand for funds by issuers of a certain class in a region can increase regional and local borrowing costs relative to nationwide costs.[44] One factor leading to

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42. J.J. Kenny Co., Inc., *Municipal Bond Defaults*, p. 23. The use of credit ratings and independent assessment of credit quality in the municipal bond market is reviewed in John Capeci, "Credit Risk, Credit Ratings and Municipal Bond Yields: A Panel Study," *National Tax Journal*, vol. 44, no. 4 (December 1991), pp. 41-56. R. Marquette and E. Wilson, "The Case for Mandatory Disclosure: Do Seasoned Municipal Bond Yields Impound Publicly Available Information?" *Journal of Accounting and Public Policy*, vol. 11 (1992), pp. 181-206, found that market prices reflected publicly available information, which they judged to be less complete and disclosed in a less timely manner than in other markets.

43. Testimony of Jeffrey Green, October 7, 1993, p. 9.

44. See Patric Hendershott and David Kidwell, "The Impact of Relative Security Supplies," *Journal of Money, Credit, and Banking*, vol. 10, no. 3 (August 1978), pp. 337-347; David Kidwell and others, "The Impact of State Income Taxes on Municipal Borrowing Costs," *National Tax Journal*, vol. 37, no. 4 (December 1984), pp. 551-561. As a result of market segmentation, credit enhancement programs that increase the supply of higher-quality

segmentation is that funds may be restricted in a particular geographic region, in part because investors outside the area have less immediate access to information on local investments and are therefore less willing to risk investing in them. But the one major cause of segmentation is that investors prefer to buy municipal bonds issued in their own states so as to take advantage of the exemption from income taxes that many states offer on local municipal bonds.[45] Because those state-specific tax exemptions also lower the borrowing costs for state and local borrowers, it is not clear that they negatively affect borrowing for infrastructure.[46]

Researchers have also argued that the municipal bond market has been segmented by maturity. Studies found that in the early and mid-1980s, banks chose to purchase short-term municipal bonds to match the maturity of their liabilities, even though longer-maturity bonds paid higher interest rates. But issuers could not take advantage of the lower borrowing costs on short-term debt because they were legally prohibited from using it to finance long-term projects.[47] As a result, they paid higher interest rates than they would have if the maturity preferences of lenders and issuers had matched more closely. Some analysts argue that the Tax Reform Act of 1986 significantly reduced maturity segmentation by encouraging a drop in bank holdings of municipal debt and leading to the entry of households into the short- and intermediate-term parts of the market.[48] New financing techniques could also help lessen maturity segmentation by allowing long-term bonds to pay short-term rates. However, some observers claim that factors inherent in the different maturities, such as the

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bonds in a state may raise the cost of borrowing for other higher-quality issues. See L. Hsueh and David Kidwell, "The Impact of State Bond Guarantees on State Credit Markets and Individual Municipalities," *National Tax Journal*, vol. 41, no. 2 (June 1988), pp. 235-245.

45. Allen Proctor and Julie Rappaport, "Federal Tax Reform and the Regional Character of the Municipal Bond Market," *Federal Reserve Bank of New York Quarterly Review* (Autumn 1985), pp. 6-15. Another cause of segmentation may be the cash management practices of states and localities. See R. Forbes and P. Leonard, "The Effects of Statutory Portfolio Constraints on Tax-Exempt Interest Rates," *Journal of Money, Credit, and Banking*, vol. 16, no. 1 (February 1984), pp. 93-99.

46. Mary Lovely and Michael Wasylenko, "State Taxation of Interest Income and Municipal Borrowing Costs," *National Tax Journal*, vol. 45, no. 1 (March 1992), pp. 37-52, found that exempting residents from state personal income tax on the interest on in-state municipal bonds reduced borrowing costs. The authors also found, however, that one-half of a state's debt must be held by nonresidents for revenue losses to equal interest savings.

47. Discussions of maturity segmentation can be found in David Kidwell and Timothy Koch, "Market Segmentation and the Term Structure of Municipal Yields," *Journal of Money, Credit, and Banking*, vol. 15, no. 1 (February 1983), pp. 40-55; and Levis Kochin and Richard Parks, "Was the Tax-Exempt Bond Market Inefficient, or Were Future Expected Tax Rates Negative?" *Journal of Finance*, vol. 43, no. 4 (September 1988), pp. 913-931.

48. Peter Fortune, "The Municipal Bond Market. Part I: Politics, Taxes, and Yields," *New England Economic Review* (September/October 1991), pp. 19-20.

tax risk of owning a long-term bond, continue to lead to some maturity segmentation.[49]

Competition in the Municipal Bond Insurance Industry

A competitive municipal bond insurance industry is important to an efficient level of state and local investment in infrastructure. If municipal bond insurers did not compete, they could set prices that were higher than their costs. As a result, borrowers would buy too little insurance and might finance an inefficiently low amount of infrastructure.

Evidence on competition in the municipal bond insurance industry is mixed. On the one hand, the industry is highly concentrated, with three firms insuring 91 percent of the bonds that are sold with insurance. Market concentration is a common measure of competition in a market. As part of their broader assessments of market competition, the Department of Justice and Federal Trade Commission use the Herfindahl-Hirschman Index (HHI), which calculates industry concentration by summing the squared market shares of all firms in the industry. In general, the two agencies regard an industry with an HHI of 1,800 as being heavily concentrated.[50] The municipal bond insurance industry had an HHI of 2,839 in 1992 (see Table 4). In addition, some analysts suggest that investors' belief in the high quality of the insurance issued by established firms--which comes from their reputations and level of capitalization --makes it almost impossible for new firms to enter the industry and succeed.

On the other hand, several attributes of the municipal bond insurance industry are consistent with the view that it is competitive:

- The premiums charged by municipal bond insurers have been declining, as a consequence of what many analysts believe is increasing price competition.[51]

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49. William Browne, "Derivatives: A Growing Part of the Municipal Market's Future," *Municipal Finance Journal*, vol. 13, no. 4 (Winter 1992), pp. 46-47 and 56-57.

50. For a discussion of the index and its use by the agencies, see Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* (April 2, 1992).

51. Thomas McLoughlin and Catherine Holstein, "Does Bond Insurance Make Sense?" *Government Finance Review* (December 1989), pp. 37-38; and Kemper Securities, Inc., *1993 Bond Insurance Company Comparison* (Chicago: Kemper Securities, Inc., August 1993), p. 5. Petersen, "Innovations in Tax-Exempt Instruments and Transactions," p. 27, also finds that prices in the market are set through "intense competition." One industry analyst notes that premium rate competition in the industry will limit the industry's profitability; see Mark Cohen, "Bond Insurers Smash Records," *Fitch Research*, September 13, 1992, pp. 1 and 3.

- Financial institutions offering other forms of guarantees, such as letters of credit, compete with municipal bond insurers. State credit enhancements also compete to a limited extent, and issuers have the option as well of not buying any credit enhancements. If premiums were being set above the cost of bearing the risk of default, it would pay some borrowers to go to market without bond insurance or to take additional steps to reduce the credit risk of their bonds. Pension funds may be able to obtain the credit rating needed to compete with existing bond insurers.[52]

- As Table 4 indicates, market shares among the three largest bond insurers have fluctuated over time, which is usually consistent with competition.

- Firms have successfully entered the industry recently. Some smaller firms are also taking steps--such as receiving additional credit ratings and selling equity to the public--to increase their capacity to compete.

The difficulty that new entrants into the industry have in competing with existing firms is not necessarily evidence of a lack of competition. Competing with firms that are well run and able to back up their insurance pledge is an arduous task and may lead firms to stay away or to leave an industry. The small number of firms may reflect their economies of scale and cost-effective production rather than inefficient pricing. There is no evidence that firms with large amounts of capital and established reputations could not enter the industry and compete successfully. Rather than reflecting barriers, the slow rate of entry into the industry may signal that competitive pricing has dampened the incentives for firms to enter the market.

Yet not even a highly competitive market results in every municipal borrower's being able to buy insurance at a price that it finds acceptable. For example, the premium that a bond insurer must charge for a smaller, riskier issue may outweigh the benefits to the borrower of buying the insurance. A bond insurer's premium must cover its costs as well as allow it to earn a market rate of return and maintain a triple-A credit rating. In particular, insurance premiums for risky issues must account for their higher risk of default, their higher probability of being downgraded below investment grade, the additional cost of underwriting the bonds, and the higher level of capital that the rating agencies require insurers to hold when they insure riskier debt. Premiums will also be higher for smaller bonds because the insurer's fixed costs will be spread over a smaller amount of debt service.

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52. See Aaron Task, "In 1994, Insurers Face Increased Competition and Diversification," *The Bond Buyer*, December 28, 1993, p. 15.

TABLE 4. MARKET SHARES OF BOND INSURERS, 1986-1992 (In percent)

	1986	1987	1988	1989	1990	1991	1992
MBIA	38.49	34.97	31.07	38.54	38.48	36.12	32.70
AMBAC	26.53	17.96	30.24	30.92	30.14	31.55	31.91
FGIC	28.49	27.16	21.21	17.67	23.92	25.23	26.76
FSA	0	0.05	1.10	0.06	5.12	4.26	5.57
Bond Investors Guaranty[a]	6.48	18.97	15.48	10.32	0	0	0
Capital Guaranty	0	0.90	0.90	2.50	2.33	2.69	1.88
Asset Guaranty	0	0	0	0	0.02	0.13	0.23
Connie Lee	0	0	0	0	0	0.02	0.95
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Insured Amount (Billions of dollars)	23.1	18.4	26.8	30.5	32.9	51.4	79.8
Herfindahl-Hirschman Index[b]	3,039	2,644	2,571	2,866	2,992	2,962	2,839

SOURCE: Congressional Budget Office based on *The Bond Buyer Yearbook* (New York: Thompson, 1993, 1992, 1990, 1989, and 1988).

NOTES: MBIA = Municipal Bond Investors Assurance Corporation; AMBAC = AMBAC Indemnity Corporation; FGIC = Financial Guaranty Insurance Company; FSA = Financial Security Assurance Incorporated; Connie Lee = College Construction Loan Insurance Association.

Numbers may not add to totals because of rounding.

a. Bond Investors Guaranty was acquired by MBIA in 1990.

b. The Herfindahl-Hirschman Index calculates industry concentration by summing the squared market shares of all firms in the industry.

A generally competitive market--especially one such as the municipal bond insurance market that falls short of the stylized perfectly competitive market--does not preclude additional competitive pressures from further reducing prices. For example, a firm that could provide insurance at a lower cost or become better informed about some types of bonds that the industry does not now insure could conceivably earn long-run profits comparable to those earned by other firms in the industry, which would put additional pressure on industry pricing.

HOW THE COMMISSION'S PROPOSALS WOULD ADDRESS THE CAUSES OF INEFFICIENCY IN THE MUNICIPAL DEBT MARKET

The commission's proposals are not directed at the three major sources of inefficiency that its members and other analysts have identified in the municipal debt market (incomplete information, market segmentation, and a lack of competition in the bond insurance industry). It is doubtful, therefore, that the proposals would improve the market's allocation of funds.

Incomplete Information

The commission's proposals would not address concerns about a lack of disclosure of information and trading data that have been raised and are being addressed by the SEC and MSRB. (Market participants are also recommending steps to resolve concerns about a lack of disclosure.)[53] The NIC would work with issuers to package relevant data about their projects and provide information to investors. But the NIC and IIC would do nothing to remove any structural obstacles to the dissemination of information about the risk of infrastructure bonds. In addition, the NIC and IIC would be no better informed about completely new types of projects than their sponsors or other potential investors.

The NIC and the IIC could produce new information that investors could use to price the credit risk of future infrastructure bonds more accurately. For example, in financing bonds that are not now financed by the private sector, both corporations would generate new information about the performance of such debt. Private firms might be able to use those data to price the credit risk of such projects more accurately in the future.

In total, however, the NIC and IIC would finance a relatively small number of large, heterogeneous projects. That focus could mean that information on the performance of the bonds financed by the corporations would be of little use to investors, who must rely on the specific characteristics of each new project when assessing the risk of financing it. Furthermore, the cost of producing the new information might be much greater than its benefits. Of course, if the NIC and IIC ultimately financed projects similar to those already being financed by the market, they would not produce new information.

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53. See, for example, American Bankers Association, Corporate Trust Committee and others, "Joint Statement on Improvements in Municipal Securities Market Disclosure" (American Bankers Association, Washington, D.C., December 20, 1993), pp. 1-9.

Market Segmentation

The commission's proposals would not directly reduce the regional segmentation of the market for municipal infrastructure bonds. States could continue their practice of taxing the interest on debt issued in other states while exempting the interest on debt issued by municipalities within their borders, which is a primary cause of segmentation. In addition, under the commission's proposals, the NIC and IIC would not target projects in smaller, segmented markets as a way of lessening segmentation. Finally, the tax break for participants in qualified pension plans proposed by the commission would not work to dispel segmentation in the market. It would still be cheaper for issuers to sell the current tax-exempt bonds in a segmented part of the market than to switch to issuing the new type of debt that benefited from a tax break for pension participants.

Competition in the Bond Insurance Industry

Although the municipal bond insurance industry is highly concentrated, there is some evidence that prices are set in a competitive manner. As a result, the federal government has no strong efficiency justification for creating and investing in the IIC. That finding does not mean that the IIC would not benefit some issuers. Rather, it suggests that alternative uses of society's resources might produce more benefits. In any case, existing state or federal regulatory powers should be used to correct noncompetitive behavior by firms if competition is weak. However, for those firms performing "the business of insurance" that are subject to state regulation, the McCarran-Ferguson Act exempts them from federal anti-trust law for activities that do not involve boycott, coercion, and intimidation.[54]

54. See Henry Cohen, *The McCarran-Ferguson Act's Exemption of the Business of Insurance from Federal Antitrust Law* (Congressional Research Service, 1990).